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AUTHOR	Hughes, Katherine L.; Moore, David Thornton
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ABSTRACT

This document, which is based on 3 years of research on 14 school-to-work programs across the United States, outlines pedagogical strategies for work-based learning. Pedagogy is defined as the organization of the social activities, organizational structures, and cultural practices by which newcomers, such as student interns, come to acquire and engage that knowledge. Presented is a brief description of the research methodology, which was designed to identify successful pedagogical strategies for work-based learning in different types of workplaces. A framework through which educators can analyze the pedagogy of particular work contexts is presented and illustrated through the examples of a student intern at a veterinary hospital and a student intern at a hotel housekeeping office. The examples are discussed in terms of the following pedagogical strategies: front loaded instruction; on-the-job training; just-in-time instruction; back-loaded instruction; mutual self-instruction; laissez-faire (sink-or-swim instruction); and observation. The various pedagogical tactics that can be used within each strategy are listed and considered in the context of the two student interns. The final section explains how the following school-based pedagogical strategies can support work-based learning: (1) journals; (2) learning plans; (3) internship classes or seminars; and (4) final papers, projects, and presentations. (MN)

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PEDAGOGICAL STRATEGIES FOR WORK-BASED LEARNING

Katherine L. Hughes
David Thornton Moore

A main purpose of the 1994 School-to-Work Opportunities Act was to make work-based learning a significant part of the education of America's youth. Hence, many schools and even entire school districts have begun internship programs, and students enrolled in these programs are now having a wide range of experiences at workplaces. In this Brief, we suggest ways to achieve quality internships. By describing what educators should look for at worksites, and methods used in schools, we explore the different ways work-based learning is organized at the workplace, and how it can be enhanced in the classroom.

Although "pedagogy" usually refers only to school-based practices, we suggest that pedagogy can be discovered in any social context where knowledge is distributed and used. Pedagogy can be defined as the organization of the social activities, organizational structures and cultural practices by which newcomers, such as student interns, come to encounter and engage that knowledge.

Pedagogy is thus situated in the social context and occurs naturally as part of the environment. Sometimes the process is intentional: People organize activities explicitly to ensure that knowledge is gained. In the workplace, of course, the longer-range goal is to enhance the production process; but for the time being, someone wants someone to learn something. At other times, pedagogy may be incidental, a by-product of activity the primary purpose of which is not someone's learning. Our definition of pedagogy includes both the intentional and the incidental, whether in the workplace or in the classroom.

Methodology

Research was conducted over three years on fourteen school-to-work programs around the country. The sites were selected on the basis of their strong work-based learning components and solid employer involvement. The first part of the project examined the programs' success with regard to employer recruitment and retention, and employers' motivations for participating (see Bailey, Hughes, and Barr, 1998; Hughes, 1998). In the second part of the project, we looked more closely at the actual work-based learning activities. At each of five programs, several student interns were interviewed and observed. The students were placed in a variety of workplaces, ranging from small non-profit organizations to large Fortune 500 companies, and they worked in many different fields, such as health, business and administration, education, the arts, and construction. This is not a representative sample; our findings are used only to illustrate different strategies for, and types of learning in, different workplaces.

Workplace-Based Pedagogy For Work-Based Learning

This section lays out a framework through which an educator might analyze the pedagogy of a particular work context (for an earlier version of this framework, see Moore, 1981). The purpose is to provide tools educators can use to identify the potential for learning in a workplace, and to help them make decisions about when and where teaching interventions might be necessary.

Whether a particular workplace can provide a good or poor learning environment for a student intern will depend partly on the following factors.

Features of the work. The way a newcomer gets to participate depends partly on the nature of the work itself. The tasks may be explored along two basic dimensions: socio-cognitive demands—the specific kinds of knowledge and skill the worker needs to be able to use in order to perform the work competently; and pragmatics—the impact the task has on the larger work process, on the organization, and on the relative prestige or status of the worker.

Access characteristics of the knowledge. Other important pedagogical features of a situation are the access characteristics of the system. Pedagogical strategies vary depending on what kinds of knowledge are available, what it takes to get access to them and what participants can do with them to formulate further knowledge. These questions are partly technical (what you have to be able to do, to read, to understand) and partly political (who is allowed access, and who is not).

Bernstein's (1975) concepts of classification and frame are another way to describe the knowledge features of the workplace. The division of knowledge into categories (classification) and the determination of who controls access to that knowledge (frame) are socially defined and politically enforced. A workplace in which classification is weak—in which knowledge is lumped into broad types—is a very different learning environment from one in which knowledge is strongly segmented into neatly constructed categories. And one in which high-level managers hold monopoly control over access to knowledge is very different from one in which anyone can choose to learn anything.

Features of the work context. Another category of factors shaping pedagogy is the organizational context. How people learn depends on such elements as the social organization, the workplace culture, and the production process. An organization with highly segmented roles, in which each status is responsible for a limited range of work and, therefore, knowledge, is a very different learning environment from one in which there is only one generalized status (tour guide, for instance) and everyone does roughly the same things, using roughly the same knowledge.

Workplace culture and the production process also affect learning. An organization in which members compete with each other for limited rewards, for instance, provides learning opportunities very different from those in a place where people see themselves as collaborating in a common enterprise. An assembly-line process gives each participant far less exposure to production knowledge than does a multi-skilled work team.

Features of the larger environment. What happens outside the immediate organizational context—market conditions, regulations, and the pace and nature of change in the technologies used and the difficulty of mastering these new tools—may also affect the distribution of knowledge-use inside.

To illustrate our approach, we analyze two student-intern cases.

Fred: The Veterinary Hospital

Interning in a small animal hospital, Fred performed a number of peripheral

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functions: filing patient records; cleaning the examination/operating room after treatments; cleaning the cages and feeding the animals; sterilizing surgical instruments before operations; restocking equipment in the supply closet; making "call-backs" to the owners of recently treated pets to check on their condition; mailing out vaccination reminders; and answering the phones.

The socio-cognitive demands of Fred's work were minimal; he did not need much technical knowledge or skill, and he rarely encountered a snag that required problem-solving. Sterilizing the surgical instruments and filling syringes with rabies vaccine demanded a degree of care and familiarity with a specific procedure, but were not difficult to master. Doing the call-backs required some communication skills. At one point, Fred tested fecal samples for worms and other conditions, but his judgment had to be confirmed by a technician. At another, an assistant told him to inject some fluid into a cat and then left the room, and Fred had to guess how to insert the needle. Most of the work, however, could be mastered very quickly.

The pragmatic features of the work were not compelling; the tasks needed to be done, but were not at the core of the organization's mission. Rather, the work represented what might be called the odds and ends of clinic maintenance. Although Fred was treated in a friendly and respectful fashion, he was clearly at the bottom of the hierarchy.

The social means by which Fred's tasks were established, accomplished and processed reflected their mundane and routine character. More often than not, he undertook his chores without explicit instructions. Most of his tasks were established early on as a part of his routine. His supervisors had shown him how to do each piece—prepare a "neuter pack" for the spaying operations, wash the towels, clean the operating area—and then left him to his own devices. This perfunctory instruction reflected the low-demand, low-status character of the tasks.

Fred seldom got explicit processing, or feedback, for the tasks he performed. Rarely did anyone tell him that he had done something well or poorly, or how he could do it differently. The absence of feedback points again to the routine and simple character of the work; there was not much he could do wrong. In one unusual instance when he carried out a somewhat complicated and risky task, the job was given to him quickly and with little instruction, and accomplished by guesswork, but processed somewhat more fully. Not much needed to be said about the quality of his performance on routine tasks.

Fred's participation in the stock of knowledge in the animal hospital was marginal, low-demand, low-intensity, and low-prestige, and it is not difficult to understand why. The organizational structure, despite the small size of the work group, was highly segmented. The doctors kept a monopoly over the core elements of the knowledge-in-use. Partly the strong classification and frame reflected the cognitive and technical complexity of that knowledge: One needs a good deal of understanding of science and a strong grasp of technical procedures and materials to do the work of a veterinarian. Partly the division of labor was driven by government regulations, particularly by licensing requirements for people who provide professional health care to animals. It was also a function of the traditional culture of medical workplaces, in which doctors have long enjoyed high status and power.

José: Hotel Housekeeping Office

José interned as an assistant to the manager of the housekeeping staff in a large hotel. The staff comprises three types of workers: room attendants, housemen, and engineers. The manager of the department assigns jobs to all three groups, supervises their work, and inspects the condition of the hotel rooms and common areas. José's tasks included aspects of all those functions. He spent much of his first day in the office, answering telephone calls from guests and housekeepers. If a guest requested a particular item, he filled out a form. Then he had to find a room attendant and ask them to deliver the item. He also had to write down everything in the logbook, which he was supposed to do first, even before carrying out the task.

Chores were established by Mr. M— or another supervisor acting in his place. Frequently—as with the hall and room inspections he was assigned—José accomplished the work by himself; sometimes he collaborated with other subordinates in the office. The processing came in several ways. First, Mr. M— occasionally commented specifically about José's performance, or suggested new ways of doing things. Second, José sometimes witnessed Mr. M—'s feedback to other members of the staff, which was often harsh. Third, Mr. M— and José talked about the work standards and the underlying ideology: Hard work is necessary and good, and front-line workers tend to fall short of the standards and need to be closely monitored. Moreover, Mr. M— complimented his diligence and skill, and José noted that several other interns had not made the grade in that respect.

Although these tasks appear mundane and lacking in educational substance, the work stood at the hub of a complex system, giving José exposure to a significant array of knowledge: about the structure of operations in a large organization (the relations among housekeeping, the front desk, purchasing and receiving, and higher management); about power dynamics in a hierarchy; about disparate workplace norms and cultures; about business applications in computers (spreadsheets, communications systems); and about the strategies and tactics of management in a largely blue-collar operation.

That is, the socio-cognitive demands of José's work went beyond the obvious ability to answer phones, fill out charts and find carpet stains. Since the demands on his boss were constant, José had to learn how to decide when to interrupt him and when not to; that required an evolving sense of priorities among apparent emergencies, which in turn called for a subtle sense of the relations among different operations in the hotel. If one guest wants matches and another needs a wheelchair, while someone has reported an intruder in the hallway, and three housekeepers are waiting for their room assignments, what do you attend to first? Thus on a socio-cognitive level, the knowledge-in-use was complex but not beyond the grasp of an intelligent teenager.

Finally, the social-interactional demands of the job were complex. José's phone contact with guests had to be conducted tactfully. Since he was in an intermediate position in the staff,

between his manager and the maintenance staff, he had to read situations in order to know how to act with housekeepers, with front desk people, and with his boss. This process involved his developing an identity as a member of management, and taking on the demeanor and values of that role.

The pragmatics of the work relate to the last point. Since housekeeping is one of the most important functions in a hotel, the managerial tasks associated with it are crucial. In addition, within the staff there is a clear hierarchy, from the maids upward through the engineers to the managers. To the extent that José could position himself as affiliated with management, his status in the organization rose, despite his being an intern and a high school student. Thus, on a pragmatic level, the work was central to the business, and exposed the student to intense contact with a broad spectrum of activities and roles. It also enabled José to develop an identification with a community of practice in the organization: management, and thus to deepen his involvement and heighten his motivation.

The culture of the workplace included a clear distinction between managers and workers, and an entrenched conception of their respective roles and characters. The fact that, even as an intern, José was affiliated with the manager of the office gave him immediate entry into the knowledge-use system. Organizationally, the hotel was very hierarchical, but José's position gave him functional access to a wide range of activities. His supervisor seemed dedicated to inducting José into the management mentality so that he could off-load some of his work onto the student.

Pedagogical Strategies

The following are not mutually exclusive, but they represent basic choices about how to go about inducting newcomers into knowledge-use systems.

Front-loaded instruction: In this model, some workplace veteran—a supervisor, trainer, or colleague—gives the newcomer extensive off-task exposure to work-related knowledge before engaging her in work activities. Generally, the supervisor determines what knowledge will be transmitted.

On-the-job training: The new worker performs real tasks, and is coached by a co-worker or trainer. The trainer may decide what the newcomer needs to know, but the learner may contribute to that decision as well.

Just-in-time instruction: The worker engages in real tasks; when she encounters work that demands new skills or information, off-line instruction or on-the-job training is provided. This instruction, while intentional, is more sporadic or occasional than the front-loaded variety. The curriculum may be determined either by the trainer or by the learner.

Back-loaded instruction: Newcomers participate in work activities, usually in peripheral roles, and then are given more explicit instruction and feedback; the strategy is to let the learner get a feel for the operation. The neophyte may have some input into the content of the instruction ("Here's what I didn't understand"), but the trainer maintains basic control.

Mutual self-instruction: Groups of newcomers are assigned tasks, and work out activities among themselves without the direct intervention of a supervisor or trainer. The curriculum is shaped by the workers on an as-needed basis.

Laissez-faire (sink or swim): The neophyte is set to work on a task without instruction either before, during or after the episode. The content of the learning is determined by the actual activities, not by someone deciding what the learner needs to know.

Observation: The new worker participates only peripherally, but has opportunities to watch and possibly ask questions.

Pedagogical Tactics

Within each of these strategies, a variety of tactics may be used to engage the newcomer with situated knowledge-use. These tactics can appear in different phases of the task and in different stages of the newcomer's trajectory of learning.

Lectures, tours of the workplace, modeling/demonstrating, dry runs, giving orders, helping out, coaching, Q&A, critical feedback, testing and checking, storytelling, reminding, trial and error, and practice.

Fred

As described above, Fred's tasks at the animal hospital were largely mundane and not likely to bring about substantial learning. The work was simple, and required only rudimentary front-loaded instruction to induct him into the necessary knowledge-use. On the other hand, the activity system in the animal hospital was small enough and visible enough to give Fred opportunities to observe and ask questions, to help the professionals, hear their stories, and get feedback from them. During the researcher's first observation, for instance, the intern watched and commented as the veterinarian amputated a cat's tail. Opportunities such as these clearly enabled him to accumulate some knowledge in the workplace.

Yet, we question whether the opportunities were systematic enough, substantive enough and repeated enough to provide a significant learning experience. He might have seen enough neuterings to begin to understand the reproductive systems in cats and dogs, but that is not clear; in fact, when the vet tested his knowledge during the researcher's third visit, he answered incorrectly. The fascinating tail amputation gave him a rudimentary feel for a part of feline anatomy, but it is not at all clear that he had other experiences that enabled him to put that knowledge into a larger context. In this sense, the learning environment was probably, on its own, inadequate.

José

José's supervisor adopted a general pedagogical strategy of on-the-job training, which began with the tour, and then involved most of the types of tactics listed above. The hotel organization made learning resources available to José on a timely basis: coaching and modeling from veterans; substantial tasks that required some problem-solving and some discretion; and room to make mistakes and rectify them. Moreover, José was provided with adequate feedback so he could learn from each opportunity. Yet on some occasions José was shut out of meetings where he might have encountered a broader range of knowledge-in-use. On others, he did not get feedback that might have honed his performance. How could he have learned more? We turn to this question next.

Institute on Education and the Economy
Box 174, Teachers College, Columbia University
New York, New York 10027
212-678-3091 Fax: (212) 678-3699
iee@columbia.edu
http://www.tc.columbia.edu/~iee
Director: Thomas R. Bailey
Managing Editor: Lisa Rothman

School-Based Pedagogy For Work-Based Learning

Journals. Almost all of the programs we visited, including those of Fred and José, require students to keep journals of their work-based learning experience. Students are expected to write an entry for every day they are on the job, and teachers or internship supervisors periodically collect and read the journals. Some programs ask only that students describe what they do, others want students to emphasize their feelings about what they do, and still others give students more structure in the form of themes or questions to respond to.

On the most practical level, journals serve as a quality control method for school personnel who do not actually have time to visit the internship worksites. On a deeper level, journals can serve to provoke reflection on the part of the students, and as an outlet for the expression of thoughts or feelings that cannot be declared at the worksite.

Learning Plans. Some, but not all, of the programs created learning plans for the internships. Learning plans are usually outlines of what students are expected to do and learn on the job. Some are generic (the same outline exists for all students at all workplaces), while others are individualized. Sometimes the plan lists in detail what the student will learn at the workplace. In other cases, the plan lists assignments the student will complete, but not necessarily at the workplace. José's program did not use learning plans. In Fred's case, he was to identify learning goals every month, and these were written on his monthly internship evaluation forms; for example, one of his goals was "learn how to deal with the public."

Internship Class or Seminar. Several programs require interns to attend a class or seminar. The focus of these classes ranges from general workplace issues to the students' particular experiences. The goal is to help students think about and understand larger issues such as work design, productivity, inequality and work, and gender issues in the workplace.

Fred attended a weekly internship seminar, sharing his observations (particularly of the surgeries) with his classmates. He also was assigned books to read on veterinary medicine, and had many writing exercises. The seminar added value to his experience. José, however, whose internship took place during the summer, had no such connected class, and did not get the regular debriefing Fred received. A parallel class could have helped José better understand the worker-management issues he was confronted with daily. While he was mature enough to have some understanding of these issues, he did not have the opportunity to deconstruct them with teachers or other students.

Final Papers, Projects, and Presentations. Most of the programs require student interns to complete and sometimes present a final paper or project. Fred's program required him to write a paper and make a presentation. José's program required him only to complete two short papers: one on his supervisor, which was to be drawn from an interview with him; and the other on what he thought about his internship.

Summary. While our analysis of Fred's workplace seemed to show that his internship was not as rich as José's, a look at the pedagogy at the school demonstrates that Fred's experience was not as deficient as one might have first thought. Fred set learning goals, attended a weekly seminar with a teacher and other student interns, and wrote and presented a paper on his experience. José clearly had more tasks and more responsibility than Fred, but lacked a structured way to reflect on his days at the workplace, or to share or compare his internship with others. School-based pedagogy can clearly make a difference in what and how much a student learns in work-based learning.

Conclusion

These case studies illustrate the complexity of analyzing situated pedagogy. The process by which neophytes in a workplace come to use new forms of knowledge is sometimes obvious, as in explicit teaching events (training sessions, workshops), and sometimes not. The social organization of knowledge-use more often serves the instrumental needs of the organization than it does the learning needs of the newcomers, but meeting those learning needs often improves the productivity of the organization. On the other hand, some organizations operate efficiently by compartmentalizing knowledge-use in a way that perpetuates the peripheral status of newcomers and thwarts their learning. Determining the way work activities shape members' participation in knowledge-use is a subtle challenge.

These issues and dynamics deserve attention from educators responsible for placing, guiding and evaluating work-based learners. Knowledge-rich organizations like hospitals and large corporations do not always prove to be the most educational, because they sometimes classify and frame the use of knowledge in ways that bar newcomers from growing participation in communities of practice. Work systems with weak classification and frame often afford interns greater access to that participation, and thus increase their learning.

Finally, rather than placing students in internships and assuming they will learn something there, educators should enhance the learning opportunities at the workplace with connected activities and exercises back at school. We have described ways to ensure that student interns gain new knowledge.

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